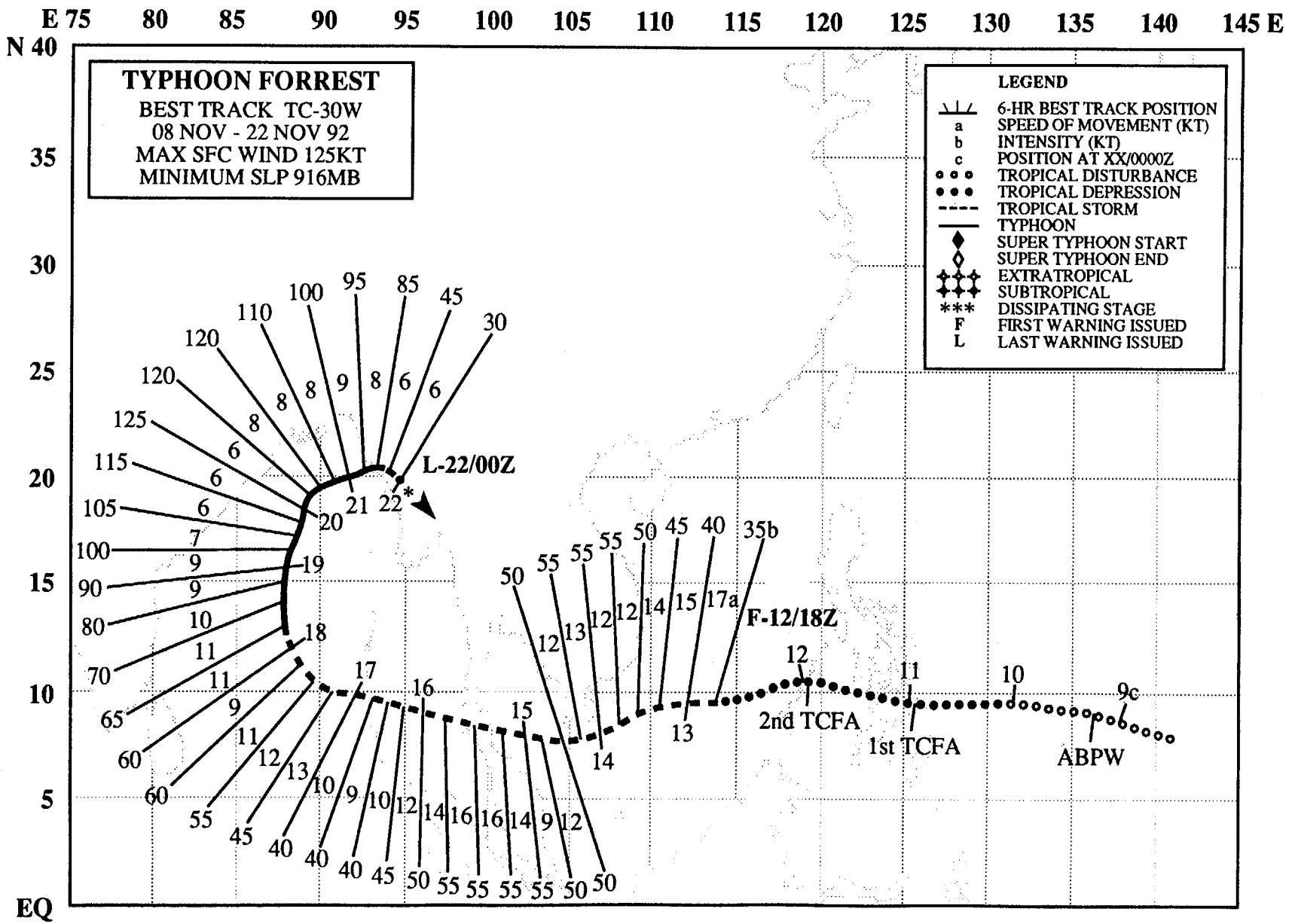
E 75 80 85 90 95 100 105 110 115 120 125 130 135 140 145 E
N 40 35 30 25 20 15 10 5 EQ
141
TYPHOON FORREST
BEST TRACK TC-30W
08 NOV - 22 NOV 92
MAX SFC WIND 125KT
MINIMUM SLP 916MB
LEGEND
6-HR BEST TRACK POSITION
a SPEED OF MOVEMENT (KT)
b INTENSITY (KT)
c POSITION AT XX/0000Z
TROPICAL DISTURBANCE
TROPICAL DEPRESSION
TROPICAL STORM
TYPHOON
SUPER TYPHOON START
SUPER TYPHOON END
EXTRATROPICAL
SUBTROPICAL
*** DISSIPATING STAGE
F FIRST WARNING ISSUED
L LAST WARNING ISSUED
L-22/00Z
F-12/18Z
2nd TCFA
1st TCFA
ABPW

TYPHOON FORREST (30W)

I. HIGHLIGHTS

The second of four significant tropical cyclones to start in November, Forrest became part of a three storm outbreak with Gay (31W) and Hunt (32W). Forrest was the only tropical cyclone of 1992 to track from the western North Pacific, across the South China Sea, and into the Bay of Bengal. It reached a maximum intensity of 125 kt (64 m/sec) in the Bay of Bengal over a day after it had started recurvature.

II. TRACK AND INTENSITY

On 9 November, the tropical disturbance that became Forrest was detected as a persistent area of convection in the western Caroline Islands, and was first mentioned on the 090600Z Significant Tropical Weather Advisory. As the tropical disturbance was approaching the southern Philippine Islands, an increase in its convective organization prompted JTWC to issue a Tropical Cyclone Formation Alert on 102300Z, forecasting for further development once the disturbance exited the Islands. The cloud system was slow to intensify and required the alert to be reissued at 112300Z. Once past Palawan Island and over open water in the South China Sea, the disturbance's organization and convection increased rapidly. JTWC issued the first warning on Tropical Depression 30W at 121800Z. The upgrade to Tropical Storm Forrest followed at 130000Z, which in post analysis appeared to be six hours slow.

As Forrest continued westward, disruptive land interactions with southern Vietnam and the Malay Peninsula temporarily prevented it from developing into a typhoon. On 15 November, the tropical storm crossed the Malay Peninsula and lost most of its central convection (Figure 3-30-1). Although a low-level circulation center remained, Forrest continued to slowly weaken for the next two days. Its central convection rebuilt and again became persistent on 17 November. Coincident with the tropical storm's intensification came a gradual track change to the north in response to the steering provided by the subtropical ridge over Southeastern Asia. At 180600Z, Forrest reached typhoon intensity and passed through the axis of the mid-tropospheric subtropical ridge to begin its recurvature. Despite the recurvature, upper-level winds were from the south-southwest, and provided enhanced outflow. As a result, Forrest reached its peak intensity of 125 kt (64 m/sec) 36 hours after it commenced recurvature. As Forrest proceeded to the north, sharper recurvature commenced, and increasing upper-level wind shear from the southwest started to weaken the typhoon. On 21 November, Forrest underwent rapid weakening as it made landfall on the coast of Burma. At landfall, the maximum surface winds gusting to 56 kt (29 m/sec) were recorded at Cox's Bazar (WMO 41992), Bangladesh, 75 nm (140 km) north of the cyclone's center. Based on Forrest's rapid dissipation over Burma's rugged terrain the final warning was issued by JTWC at 220000Z (Figure 3-30-2).

III. FORECAST PERFORMANCE

The sample of mean track forecast errors for the South China Sea area was small and the errors of 75 and 105 nm (135 and 195 km) for 24 and 48 hours, respectively, were roughly equal to CLIPER. The mean forecasting errors for track in the Bay of Bengal were considerably larger at 100, 220 and 415 nm (185, 405 and 770 km) for 24, 48 and 72 hours, respectively. This performance, which again matched CLIPERs performance, was average for the short range, and less than average for the extended outlooks. JTWC did correctly forecast Forrest's track change to the north in the Bay of Bengal, but did

not anticipate the sharpness of the typhoon's turn towards the coast of Burma three days later.

The intensity forecasts were good, except for a two-and-one-half-day period starting on 160600Z where the 72-hour extended outlooks were 35 to 80 kt (18 to 41 m/sec) too low when forecast weakening in the central Bay of Bengal did not occur, and unforecast intensification did occur.

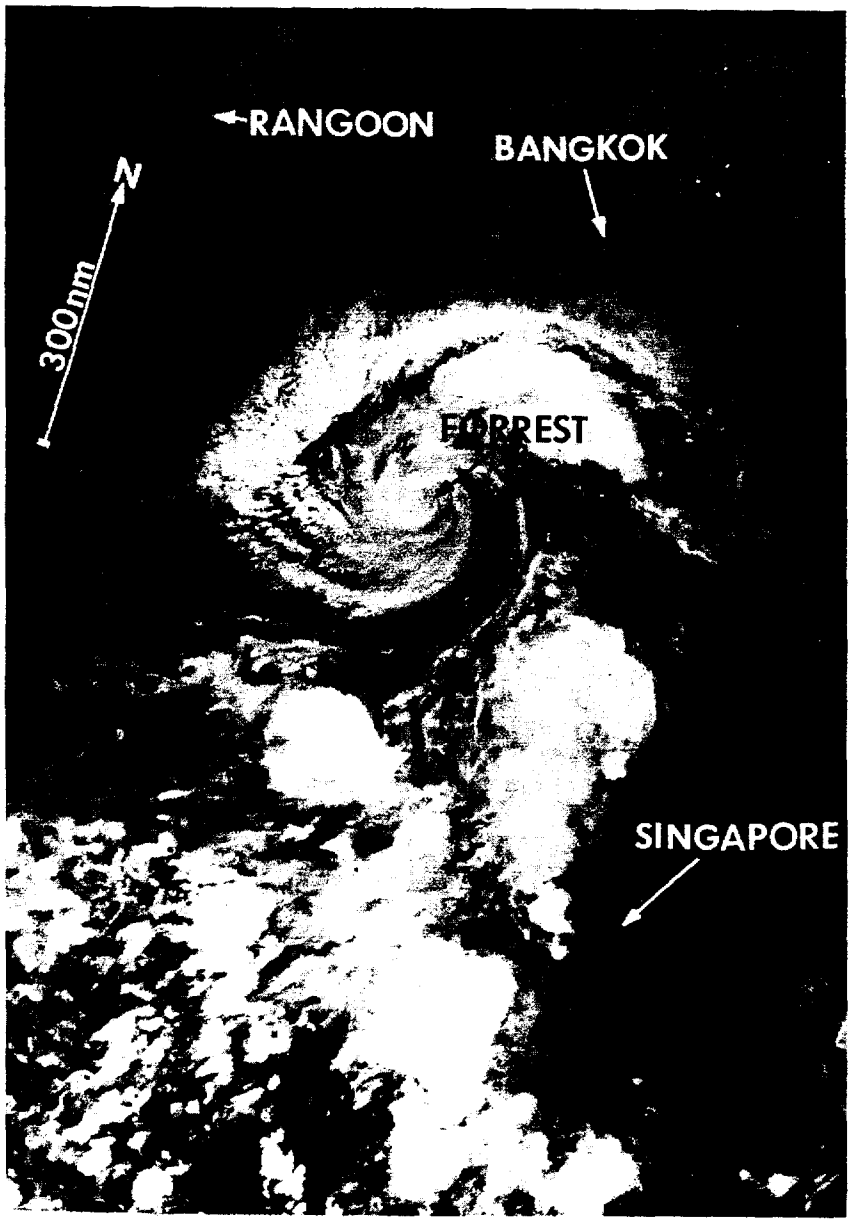

Figure 3-30-1. Forrest's cloud pattern remains tightly coiled as the tropical cyclone crosses the Malay Peninsula (151419Z November DMSP infrared imagery).

IV. IMPACT

In the Gulf of Thailand, Forrest threatened the numerous manned gas platforms. All platforms were evacuated in advance of the tropical storm's approach and no injuries were reported. Afterward, Forrest swept across the Malay Peninsula. No fatalities were reported, most probably due to the evacuation of approximately 10,000 people from the coastal areas. More than 1000 houses and many roads were seriously damaged or destroyed.

As the typhoon turned in the direction of the northern Bay of Bengal, authorities in the region had not forgotten the effect of Tropical Cyclone 02B, which struck Bangladesh in April 1991 killing an estimated 138,000 people. Disaster preparedness officials in Bangladesh successfully evacuated of an estimated 500,000 people in response. Fortunately, the center of Forrest went ashore in a relatively sparsely populated region of Burma and spared Cox's Bazar where over 250,000 Burmese refugees were housed in tents. U.S. agencies had activated plans for a massive relief effort, but the sharper recurvature and small size of Forrest allowed the plans to be canceled. Only two fatalities in Bangladesh were reported.

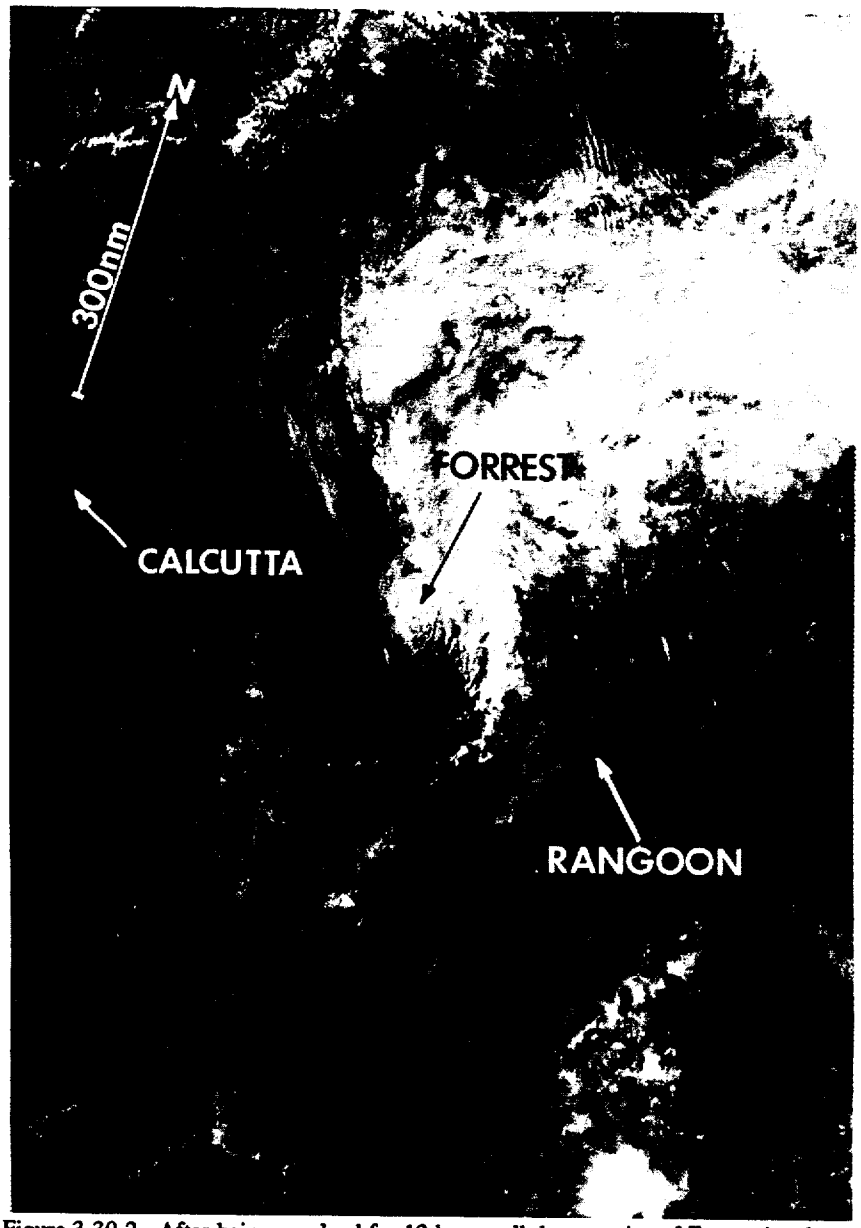

Figure 3-30-2. After being overland for 12 hours, all that remains of Forrest is a low-level cloud vortex (220255Z November DMSP visual imagery).